General information

Gate valves in the potable water and gas sectors

In 1957, Hawle invented the resilient-seated gate valve with O-ring sealing of the gate valve spindle, and applied for a patent. Today, this type of gate valve has become the standard in potable water and gas supply. Numerous design variants were gradually developed on the basis of this patent. Examples of these include exchange gate valves, combi gate valves, gate valves with PE fusion and service valves with push-fit sockets, etc. Hawle gate valves are characterised by their smooth operation, long service life and wide range of variants.

In the case of Hawle potable water gate valves, shut-off is achieved by means of a resilient-seated wedge made of cast iron (GJS-400) with EDPM vulcanisation. The sealing system is likewise composed of an EPDM rubber gasket.
The latest generation of these gate valves are the E3 gate valves. They are characterized by particular ease of operation and increased corrosion protection. Wedge and wedge nut are vulcanized over the entire surface. The resilient-seated Hawle gate valves are partly available with appropriate NBR sealing material for the gas sector as well.

Design of the “E3” Gate Valve for Potable Water

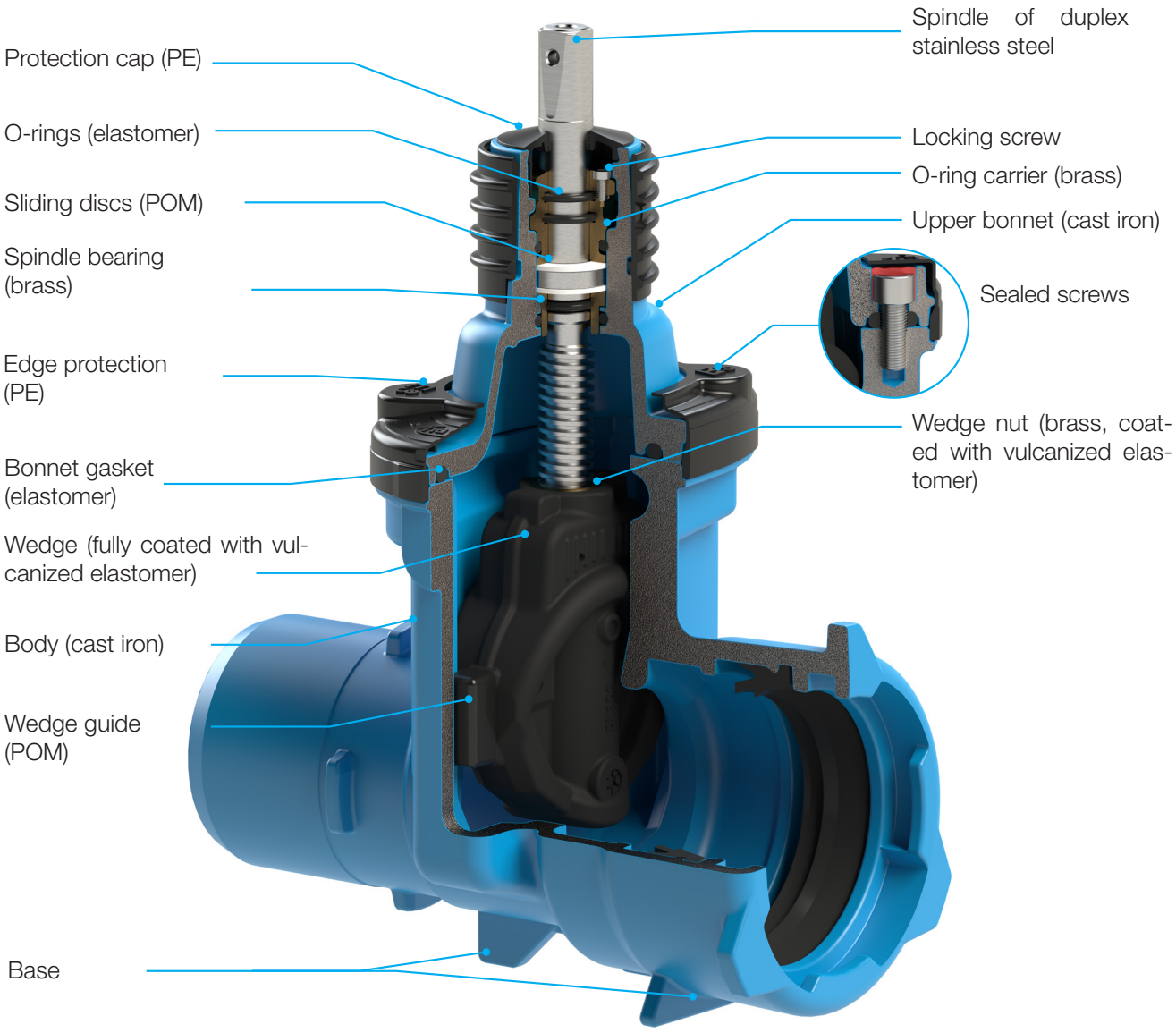

Figure: Hawle Spigot end gate valve “E3” (451-00)

Spindle Revolutions and Maximum Required Closing Torque																		
Gate valve generation	E2	E2	E2	E2	E3	E3	E3	E3	E3	E3	E3	E3	E3	E3	E3	E2	E2	E2
DN	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
Revolutions	5	7	8	10	10	13	16	20	25	30	34	42	50	59	58	58	63	75
Lift (mm)	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	400	500	600
Max. closing torque at 16 bar (Nm)	5	5	15	15	30	35	35	40	50	50	70	90	120	140	160	160	250	250
Spindle square (mm)	12.3	12.3	12.3	12.3	14.3	17.3	17.3	19.3	19.3	19.3	24.3	27.3	27.3	27.3	32.3	32.3	36.3	36.3

Gate valves in the sewage sector

Pressure drainage systems in sewage water plants require gate valves that are suitable for buried installation, on the one hand, and that are equipped with a shut-off element resistant to sewage water and durably functioning, on the other hand. The Hawle gate valves for sewage water are provided with a shut-off blade of hard-rolled stainless steel and an O-ring package for shutting off. The sealing system prevents solids from sticking to the spindle and permits the exchange of the valve bonnet without taking the pressure line out of order.

Assembly sewage water knife gate valve

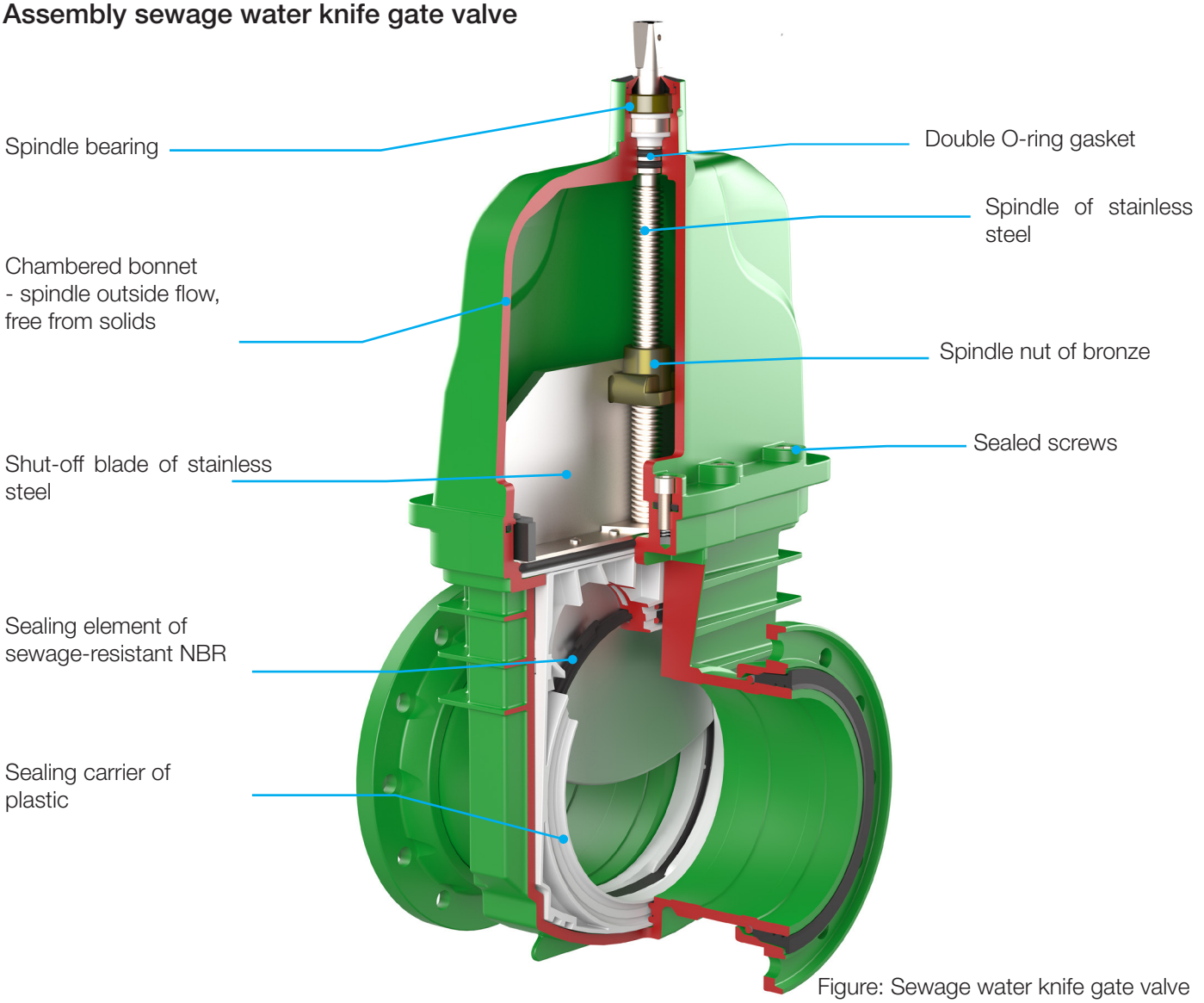

Figure: Sewage water knife gate valve DN 250, group 15 (481-00)

DN	PN	Max. closing torque at 10 bar [Nm]	Revolutions open / close	Lift [mm]	Spindle square [mm]
50	10	15	8	63	12.3
63	10	15	8	63	12.3
80	10	20	11.5	80	14.3
100	10	20	13.5	100	14.3
125	10	30	31	150	17.3
150	10	30	31	150	17.3
200	10	50	47	200	19.3
250	10	70	52	300	27.3
300	10	70	52	300	27.3

Knife gate valves in the sewage sector

The resilient-seated knife gate valve HaPUR® (392-00) with straight-through bore has been conceived for municipal sewage disposal and can be used both in plants and in manholes. The particularly smooth-running actuation of the HaPUR® knife gate valve can be effected via handwheel, shut-off key, extension spindle, electric actuator or pneumatic actuator. The gate valve can be installed both between two flanges and at the end of a pipeline. Due to the hexagonal recesses for nuts, the gate valve can also be used later as an end valve, for example, in case of pipe rehabilitation. The polyurethane-coated shut-off blade of the knife gate valve seals directly at the body. When worn, the sealing package can be exchanged without dismantling the gate valve.

Assembly Knife Gate Valve

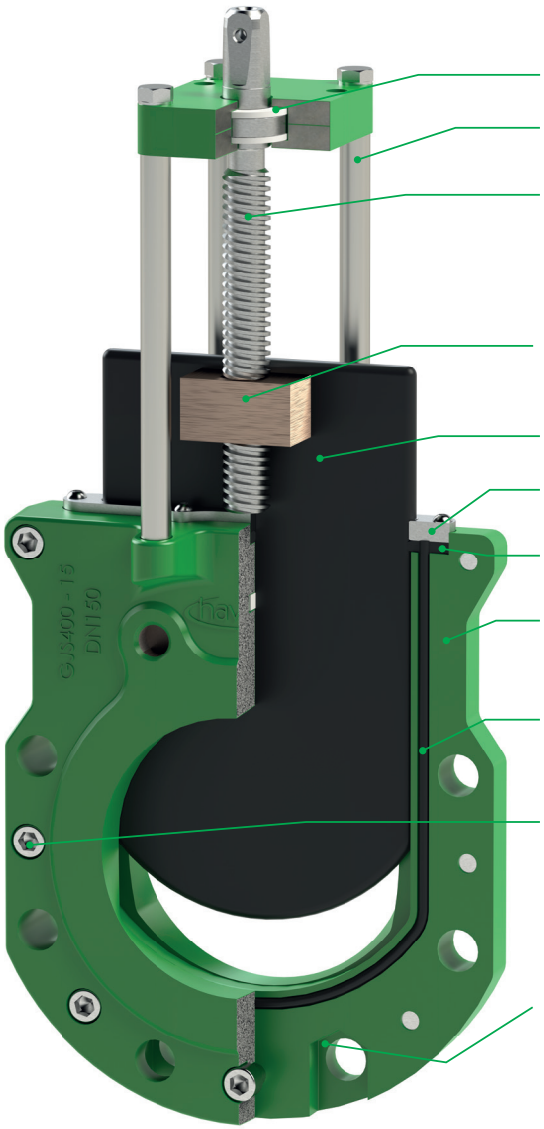

Illustration: HaPur DN 150, series 20 (392-00)

Medium limit values

The following limits apply to the use of our wastewater products in municipal sewage:

Total hardness: min. 8.0° dH
PH value: min. 5 to max. 9.5
Chlorides: max. 250 mg/l
Free chlorine: max. 0.3 mg/l
Sewage temperature: max. 40° C

Connection versions

1.1. BAIO® system

The form-locked connection of gate valves in the BAIO® system is produced fairly effortlessly via a bayonet connection. This way, gate valves and fittings can be connected efficiently and without screw connections.

Thanks to the BAIO® socket it is possible to use the system on the one hand for ductile cast iron pipes and steel pipes with ductile iron pipe outside diameter with a BAIO® lip gasket (BLD®) and on the other hand with a cast iron-plastic seal (GKS) for PVC- and PE pipes. When connecting PE pipes a support liner (model no. 590-00) must be used.

Note BAIO® system for gas
As special gaskets are required for use in the gas sector, when ordering it is vital to specify“Use in gas sector”!
The gaskets are prefitted at the factory. Gas sealings must be marked as such. Unmarked gas gaskets must not be used in the gas sector.

Medium: Potable water, sewage water, gas

1.2 Flange joints

Fixed flange
The use of fixed flanges is a method of connecting pipe sections tightly but removably to one another. The flange sheet hole pattern is produced in compliance with the EN 1092-2 standard. In plant construction, flange connection is the most common method used to connect vales and fittings to one another. In underground installation however, increasingly alternative connection techniques are used, since these better satisfy the increased requirements for valves and fittings installed in the ground.

Medium: Potable water, gas, H2

Loose flange system
Besides fixed flanges, Hawle offers the version of the restraint loose flange system for its gate valves as well. Besides being suitable for new construction projects, this connection version is particularly suitable for replacing existing valves and fittings. The flat gaskets (barrel gaskets) are already included in the loose flange, thus avoiding expensive wedging up between the flanges.

Medium: Potable water, sewage water

Connection versions

1.3 System 2000

The “System 2000” is suitable for PE- and PVC pipes. When using PE pipes the “System 2000” is an easy to assemble and economical alternative to welded joint technology.

Inserting the plastic pipe into the “System 2000” socket and then tightening the locking ring creates a restraint connection tight up to 16 bar.

The use of a support liner is stipulated for thin-walled PE pipes (≥ SDR 21) and with negative pressure pipelines.

Medium: Potable water

1.4 Welding technology

When welding gate valves with PE pipes, a permanent and non-positive connection is created. The valve for PE fusion with PE fitting is for welding into PE pipelines via electrofusion- or heat reflector butt-welding procedures. The quality of welded joints depends on the qualifications of the welders, the suitability of the machinery used and compliance with the welding technical code DVS 2207-1. The op erating and maintenance instructions of the products being used must always be followed. In the gas sector Hawle likewise also offers you a version with a steel weld-on end to integrate the gate valve into a steel pipeline.

Medium: Potable water, gas, H2